In Reply.—Dr. Riley makes some important points. At Stanford University, if nursing and other OR labor time really has been extended and if turnover really has been prolonged those extra 3 min (this may not be true; see response to Drs. Bailey and Egan), then some savings may be negated at Stanford. The purpose of any study with well-defined methods is to allow those who would implement the methods of that study to decide how they apply to that particular institution. Stanford is relatively unique in that they have managed to pay their nurses to the minute. I would be willing to bet, however, that nurses do not keep such an accurate accounting of their time so as to enable them to discern a 3-min interval. If they do, Stanford is to be congratulated on such precise time-keeping and salary cost control.

Dr. Riley is mistaken in his analysis of the one case of prolonged mechanical ventilation resulting from pancuronium administration. The incidence, overall, was not any different before versus after the implementation of practice guidelines. There previously were cases of prolonged ventilation resulting from use of intermediate-acting muscle relaxants. Regardless of whether one used primarily intermediate-acting muscle relaxants or long-acting muscle relaxants, our results statistically demonstrated that no difference existed and that no great difference could theoretically exist (see 95% confidence limits) in the incidence of pulmonary complications, including postoperative ventilation. Because of the strong feelings on this issue, we repeated that survey without telling our staff to make sure that we had not changed the issue that we were studying by studying it (accounting for the Hawthorne effect). Again, the incidence of postoperative mechanical ventilation was no different than when we used intermediate muscle relaxants. In all, we studied 2,500 patients for evidence of an effect of switching from one muscle relaxant to another and could not find any effect. Dr. Riley suggests a risk resulting from residual muscle relaxation. I would refer him to my response to the letters of Drs. Egan and Bailey. As for paying me an extra $18 for vecuronium, that would be fine, but it would not change the incidence of postoperative mechanical ventilation and it would not statistically lower the risk of a course of postoperative mechanical ventilation.

Finally, Dr. Riley makes an important point that one should include all the other costs. We did not account for the effect on time outside the hospital (e.g., the time not paid for, patient suffering, and rare complications, and so on, as mentioned by Dr. Riley). It would have been better if we did. There is some cost to society in spending an extra 3 min caring for a patient, and, according to recent guidelines on performing cost-effectiveness evaluations,1-3 we should have also approached the costs of recovery room care and of operating room care from society’s viewpoint. The guidelines suggest considering the semi-fixed and fixed OR costs and including them when evaluating costs from society’s viewpoint. However, this article was undertaken from the viewpoint of the hospital and was completed long before those guidelines were published. In retrospect, it would have been wise to include the concerns raised by my learned colleagues so that the costs from the hospital and society’s viewpoints could have been calculated exactly. No matter how the calculations were done, those costs would in no way approach the cost savings attributed to the program we instituted.

We believe that we examined all of the pertinent outcomes that were possible to study, and again we welcome the efforts of anyone who wishes to supplement our findings. Fine medical economics research is performed at Stanford’s anesthesia department, and we look forward to future contributions as we all seek the best care for our patients. Our own practice guidelines are fluid and in transition. Anytime another investigator proves that the use of a drug is good or bad, we will take that into account, and we will change what we do. But for now, we will be driven by data, not by opinion or fear.

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